Roland
WE DESIGN THE FUTURE

SH-201
SYNTHESIZER

Creating Sounds with Fun and Ease

Synthesizer 101: Learning the SH-201

Top Panel

Arpeggiator adds instant rhythmic motion to sounds.

Short recorder onboard to capture and loop your performance and knob movements.

Invisible infrared D Beam controller. P5

Ultra-EZ front panel is logically designed to teach the basics of synthesis.

OSC P9 FILTER P11 AMP P13 LFO P15

External input for manipulating external audio from CD/MP3 players, etc. P17

Built-in delay, reverb, and overdrive effects. P19

VSTi Editor software included for computer integration.

USB port for audio/MIDI connection to computer.

Put the Fun Back in Synthesis!

Experience the magic of creating your own sounds.

For more than a quarter century, Roland has defined and redefined the state of the art in synthesizers.

Today, the fundamentals for sound creation remain the same for most synthesizers.

By understanding the fundamentals, anyone can enjoy creating sound for virtually any type of synthesizer.

Roland Synthesizer History

SH-1000 1973

The first of its kind to be produced in Japan, the SH-1000 was an instant hit with its compact size, easy operation, and affordable price.

SYSTEM-700 1976

Bringing together all the soundmaking technology of its day, this complete electronic studio system was used by leading broadcasting stations and groundbreaking electronic music artists.

JUPITER-8 1981

An 8-voice analog synthesizer with 64 sound-memory locations. One of Roland's earliest polyphonic synthesizers, this significant instrument paved the way to today's synthesizer development.

JUNO-60 1982

61 key, 6-voice fully programmable polyphonic synthesizer with 56 sound-memory locations. Roland's proprietary DCB interface standard was used for exchanging control information with external device.

D-50 1987

Equipped with the Linear Arithmetic (a.k.a. LA) synthesis, this was Roland's first full-digital synthesizer, and one of the best-selling models. The D-50 was a worldwide sensation due to its operating ease and stunning sound.

JD-800 1991

Combining stunning digital sound with a natural feel and operability reminiscent of analog instruments, the JD-800 was the pinnacle of synthesizer development of its era.

JP-8000 1996

This 8-voice synthesizer has an inviting array of knobs and sliders to manipulate an analog modeling synthesis engine. It has a built-in Motion Control function that allows operations on a panel to be recorded and played back.

V-Synth 2003

V-Synth XT 2005

Independently manipulate the pitch, time, and formant of sampled waveforms using VariPhrase® technology — a world's first in a synthesizer!

The V-Synth XT is fully stocked with a potent array of synthesis types, including the V-Synth's famous Elastic Audio Synthesis engine, plus analog-synth modeling, vocal modeling, and classic D-50 emulation.

Roland has released numerous legendary synthesizers in the past. The newest member of the line, the SH-201, combines Roland's state-of-the-art technology with an incredibly easy user-interface.

NEW

SH-201 2006

Even though this is synthesis at its friendliest, the SH-201 is no toy. With two beefy analog-modeling oscillators, complete with Roland's famous Supersaw waveform and resonant filter, this little synth can blow down doors.

This guidebook will give you many tips for creating classic synthesizer sounds on the SH-201. If you're new to synthesis, fear not. We will guide you every step of the way, so no worries!

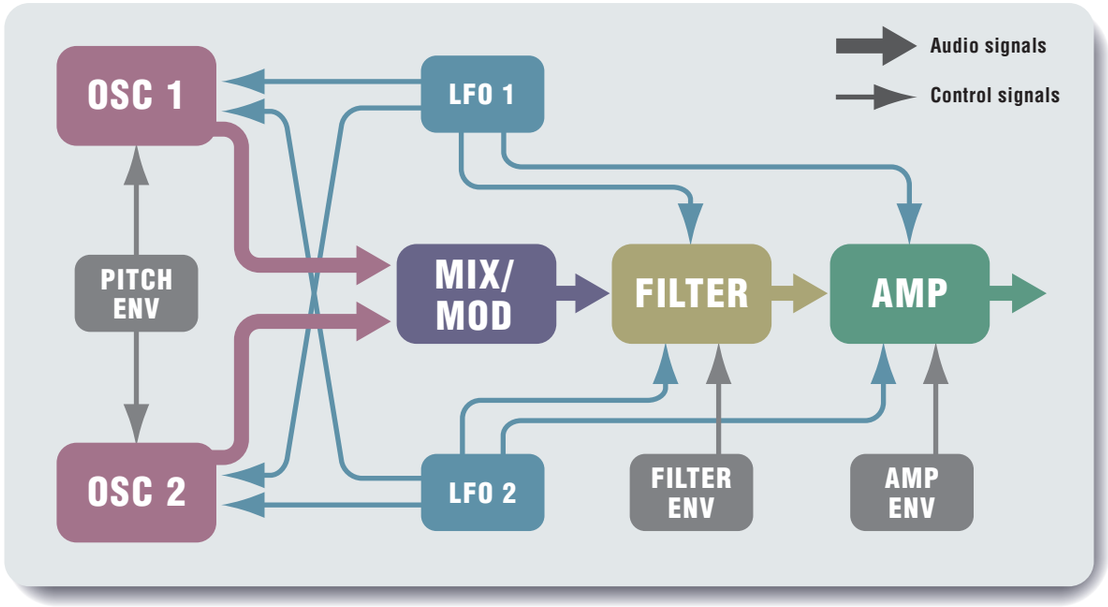
As you master the fundamentals of creating sound, an unexplored world of creativity awaits you. Let's begin our journey together!

Synthesizer Evolution — the Workstation

The Fantom-X Series is the flagship of the Roland workstation family, offering musicians nearly 1GB of wave memory when fully expanded, and 128-voice performance.

Fantom-X 2004

A typical synthesizer will have a signal flow-chart similar to the one pictured below.
To start, let's understand the fundamentals.



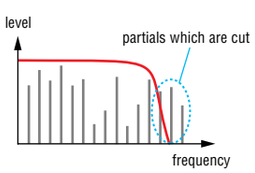
OSC Oscillator (→ P. 9)

This is the basis of the sound, where the waveform and pitch are selected. It is indeed the heart and soul of a synthesizer. On analog synthesizers, it is called the VCO(*1). A VCO is a sound generator capable of changing frequency through changes in voltage. The SH-201 has two oscillators (OSC1 and OSC2). It's like having two synthesizers in one.

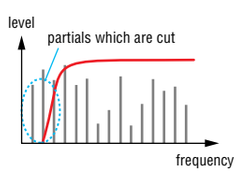
FILTER (→ P. 11)

This is where the sound signal generated from the OSC is processed through the emphasis and rejection of a selected frequency range. On analog synthesizers, it is called the VCF(*2). A VCF is used to continuously change the characteristics of a filter (cutoff frequency) through changes in voltage. The SH-201 houses three separate filters, each designed for a specific purpose.

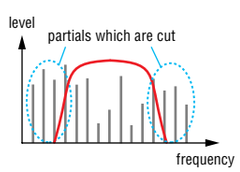
LPF Low Pass Filter



HPF High Pass Filter



BPF Band Pass Filter



AMP (→ P. 13)

Sound generated in OSC and processed through the FILTER is amplified here. On analog synthesizers, it is called the VCA(*3). The VCA is used to change the volume (level) of sound signal through changes in voltage.

LFO Low Frequency Oscillator (→ P. 15)

This is a sound generator capable of producing low frequencies. On analog synthesizers, it is also called the LFO(*4). The LFO affects the OSC, FILTER, and AMP individually as it adds modulation. LFO is a "must have" for producing synthesizer-like effects.

■ Examples of LFO

LFO	applied to OSC	→	Vibrato
	applied to FILTER	→	WahWah (Growl)
	applied to AMP	→	Tremolo

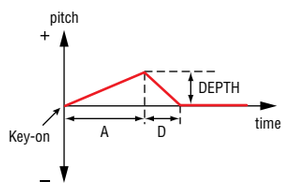
ENV Envelope Generator (→ P. 10, 12, 13)

An envelope generator controls the initiation and termination of sounds. On analog synthesizers, it is also called ENV(*5). Every time you play the keyboard, ENV affects the volume and timbre on OSC, FILTER, and AMP individually as it processes its time-varied elements.

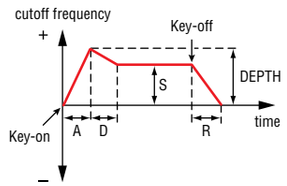
■ Examples of ENV

ENV	applied to OSC	→	Pitch becomes higher or lower
	applied to FILTER	→	Sound becomes brighter or darker
	applied to AMP	→	Sound becomes louder or softer

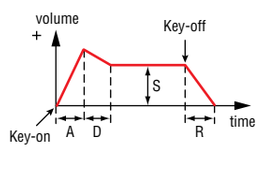
PITCH ENV



FILTER ENV



AMP ENV

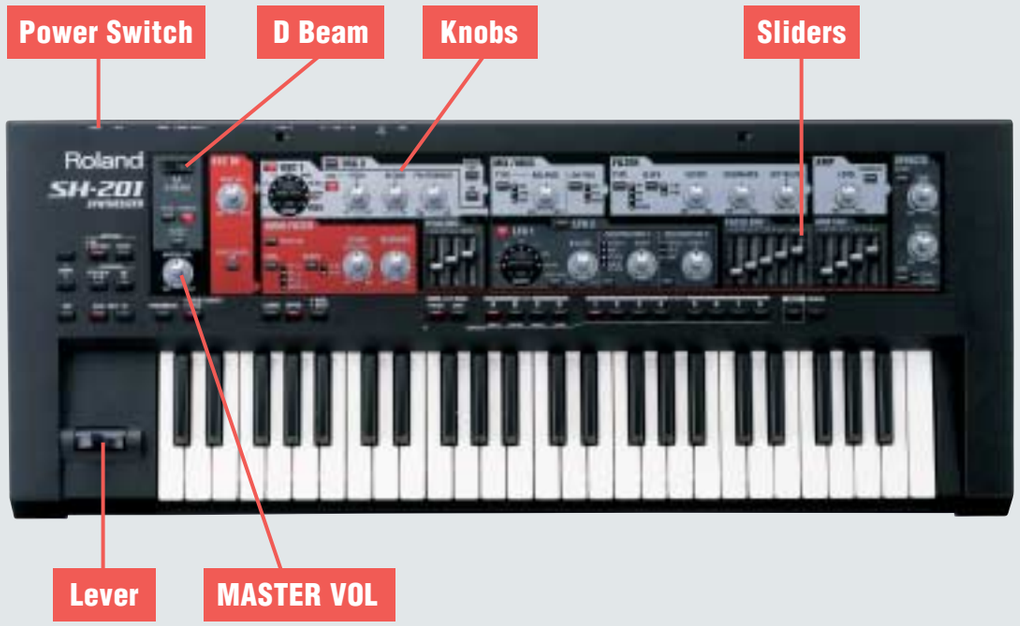


Analog Synthesizer

Once considered relics, analog synthesizers are attracting attention once again. The simple and easy-to-understand OSC → FILTER → AMP structure enables real-time control to achieve dynamic sound variation. Moving knobs and faders to create your own unique sound can be a very exciting experience indeed. The SH-201 is recommended not only for keyboardists, but for any artist or producer who desires a new outlet for creativity expression.

(*1) Voltage Controlled Oscillator (*2) Voltage Controlled Flter (*3) Voltage Controlled Amplifier
(*4) Low Frequency Oscillator (*5) Envelope Generator

You can start playing the SH-201 as soon as you turn on the power. Go ahead and play the keyboard while adjusting the volume with the [MASTER VOL] knob.



- Lever on the left side of the keyboard can be moved left or right to change the pitch.
- Lever on the left side of the keyboard can be moved forward to add vibrato.
- D Beam on the upper left of the keyboard can be controlled from your hand movement above to change the pitch, volume, or brightness.
- Listen to the sound as you move any or all of the knobs and sliders gradually.

The SH-201 lets you create sound while listening to it in real time by moving knobs and sliders.

At this stage, it is okay if you don't know how each control affects the sounds.
Don't worry, because you will get a hang of it as you continue with this text!

SH-201 allows you to store the timbres (sounds) you have created. These stored timbres are called patches.

A total of 64 patches can be stored. The patch-storing location works like a file cabinet. A patch can be selected through the GROUP, BANK, and NUMBER buttons.

PRESET GROUP (read only)

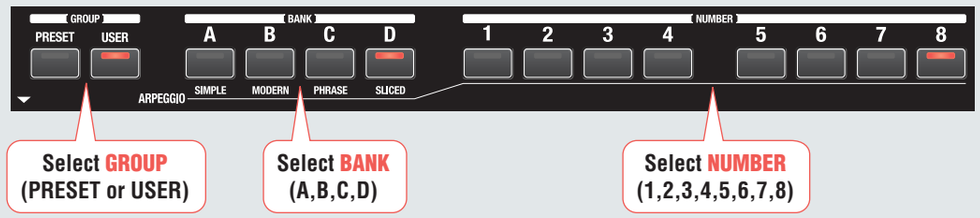
BANK (A–D) \ NUMBER (1–8)								
A	A-1	A-2	A-3	A-4	A-5	A-6	A-7	A-8
B	B-1	B-2	B-3	B-4	B-5	B-6	B-7	B-8
C	C-1	C-2	C-3	C-4	C-5	C-6	C-7	C-8
D	D-1	D-2	D-3	D-4	D-5	D-6	D-7	D-8

USER GROUP (rewritable)

BANK (A–D) \ NUMBER (1–8)								
A	A-1	A-2	A-3	A-4	A-5	A-6	A-7	A-8
B	B-1	B-2	B-3	B-4	B-5	B-6	B-7	B-8
C	C-1	C-2	C-3	C-4	C-5	C-6	C-7	C-8
D	D-1	D-2	D-3	D-4	D-5	D-6	D-7	D-8

Half of the SH-201's 64 patches are user programmable. In other words, use these locations to store your original timbres that you have created.

Once the timbres are stored, they can easily be recalled and played through simple button operations. Experiment with all of the patches on SH-201 to hear the sounds created!



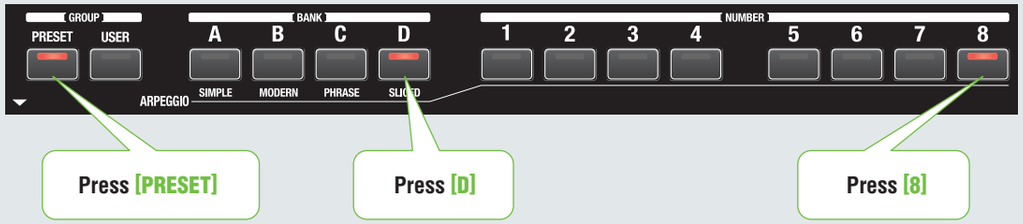
Let's get into the function of each of the controls.

Sound Programming for Thought

As you check out the factory-preset patches in detail, you will find many creative ideas. Use them as examples to create your own sounds from scratch. This method will enhance your sound-making skills, verses the common approach of editing a pre-existing sound.

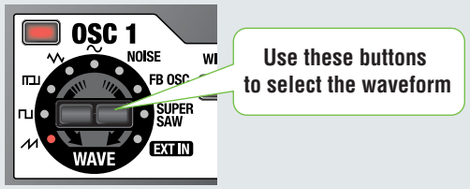
The OSC determines the waveform and pitch, which becomes the source of the sound. This is the heart and soul of a synthesizer. On analog synthesizers, it is called the VCO(*1). The VCO is a sound generator capable of changing frequency through changes in voltage.

Let's examine the standard patch "PRESET D-8".



This patch is using the sawtooth wave of the OSC1 (oscillator 1). Play the keyboard, and hear the sound of this waveform. The sound at this stage is very simple and expressionless. To hear how the sound changes with each step, play the keyboard after each process.

First, determine the waveform to use as the source of the sound. Play the keyboard with your left hand while switching waveforms with the **[WAVE]** button. Listen to the differences in the sound of each waveform as you play the keyboard.



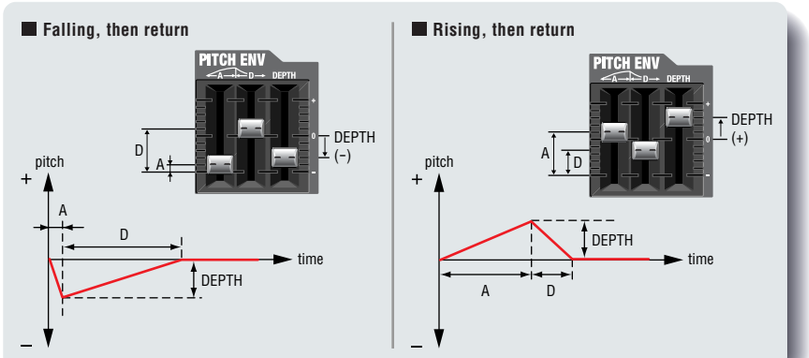
Waveform Examples		
	Sawtooth Wave	Very rich in harmonics. May be used to simulate the basis for many types of musical instruments. Especially suitable for creating brass and stringed instruments sounds (violin, piano, etc.)
	Square Wave	Includes many odd numbered harmonics. Best suited as the sound basis for woodwind and percussion instruments (clarinet, xylophone, etc.).
	Sine Wave	The most basic waveform. It does not possess any harmonics. It sounds like a whistle.

Listen to the different sounds from each of the waveforms, afterward returning the setting to the sawtooth wave.

Next, let's determine the pitch. Playing the keyboard with one hand while turning **[PITCH]** and **[DETUNE]** knobs left and right gradually with the other hand. Listen to the changes in pitches.

After listening to the sounds each knob creates, make a habit of returning the knobs to its center position.

On brass instruments such as a trumpet, the initial part of the blow (attack) may be a little off pitch. Let's recreate this time-varied change in pitch. Move the **[A]**, **[R]**, and **[DEPTH]** sliders up and down gradually and listen to the effects.



Next, let's go to the "FILTER", where the sound is processed.

Envelope

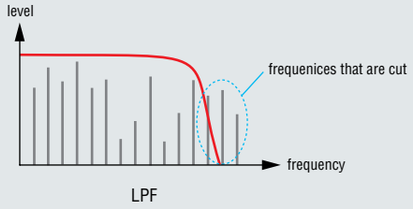
ADSR affects the pitch, filter, and amp of the envelope. Here are their names and definitions.

Symbol	Name	Pitch/Brightness/Volume
A	Attack Time	Time taken from zero to max
D	Decay Time	Time taken from max to sustain level
S	Sustain Level	Level of Volume/Brightness while key is held
R	Release Time	Release Time taken from sustain to zero after key is released

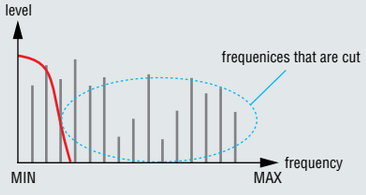
(*1) Voltage Controlled Oscillator

The sound signal generated from the OSC is processed through the filter, which can emphasize and reject a selected frequency range. The filter can affect and change the sound's brightness, boldness, and more.

Press the **[TYPE]** button and select LPF(*1). The LPF controls the amount of high frequencies that pass through. Thus, it has no effect on sounds in the low frequencies.



Turn the **[CUTOFF]** knob as you play. Slowly turn it counter clockwise from all the way right (MAX) leftward to (MIN). The sound will gradually muffle during this process, and when it is turned left all the way, most of the sound becomes inaudible. This is due to the fact that most of the sound frequencies have been filtered out and rejected.



First, set the **[CUTOFF]** knob to the "two o'clock" position.

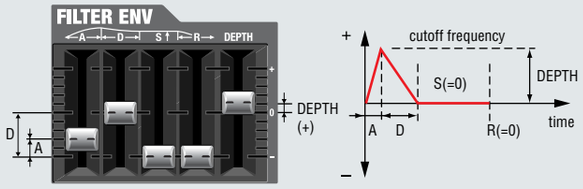
Next, turn the **[RESONANCE]** knob. Turn it all the way left (MIN), then gradually rightward to (MAX). It will start to resonate, yielding a colorful, howling sound.

If you turn the knob far too right, you will hear an ear-piercing, high-pitched sound. This sound is generated from the filter itself. If you continue to play the keyboard in this manner, you will realize that the filter-generated sound is completely independent of the waveforms and pitches generated by the OSC (oscillator).

Now, set the **RESONANCE** knob to the "one o'clock" position.

On a piano, its initial sound would include most of the harmonics that generates bright sound. Afterward, the sound would fade gradually, as a decrease in harmonics will result in a dull (dark) sound. To re-create this phenomenon, create a time-varied effect with the filter. In other words, the operation of turning the **[CUTOFF]** knob becomes automated as you play the keyboard.

Set the **FILTER ENV** sliders in this manner and play the keyboard.



Lastly, turn the **[KEY FOLLOW]** knob. Turn it right all the way to the (+) position; the low frequencies become softer, and the high frequencies become brighter inversely. Try setting the knob at different positions, and play the keyboard to hear what it does.

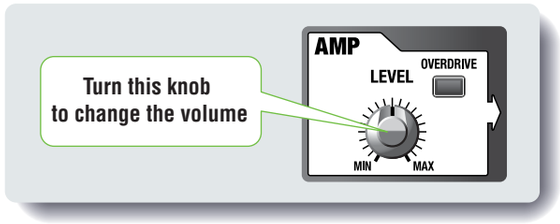
When you are finished, turn the knob all the way to the (+) position.

Next, let's go to the "AMP", where the initiation and termination of the sound are determined.

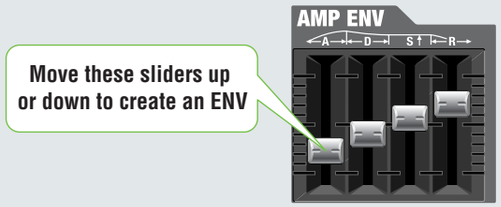
(*1) Low Pass Filter

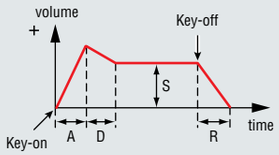
The sound signal generated in OSC and processed through the FILTER is amplified here. The AMP also controls the attack and decay of sounds.

Turn the **[LEVEL]** knob left and right. Listen to the change in the sound levels (volume).



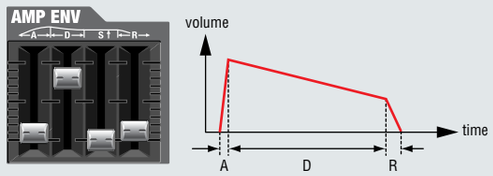
The Attack and decay of sounds are controlled by the ENV (Envelope Generator).





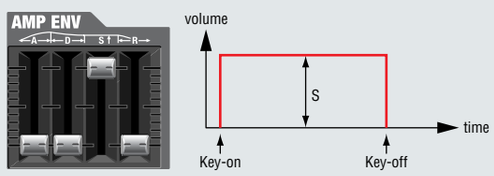
Think about playing a piano for a moment.

When the key is struck, the hammer pounds on the sound source (string) and the vibration of the string reaches a peak immediately. Afterward, even if the key is held down, the sound will gradually become weaker and softer. When the hand is released from the key, the sound will begin to die at that instant.



Next, think about playing an organ.

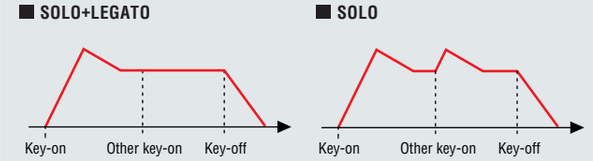
When the key is struck, sound generates immediately. As long as you hold down the key, there will be no change in volume. When the hand is released from the key, the sound will stop at that instant.



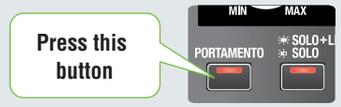
Move these **[A]**, **[D]**, **[S]**, and **[R]** sliders up and down, and listen to how it affects the sound. Afterward, to leave some lingering sound after releasing the hand, leave the **[R]** slider at the mid-high position.

Additionally, to create a classic synth sound (analog lead sound), set it up to play monophonically (single note at a time) by pressing the **[SOLO]** button.

In this set up, when you play a key while playing another key, timbre will remain unchanged but the pitch will change (SOLO+LEGATO). This effect is similar to the trill technique used in string instruments.



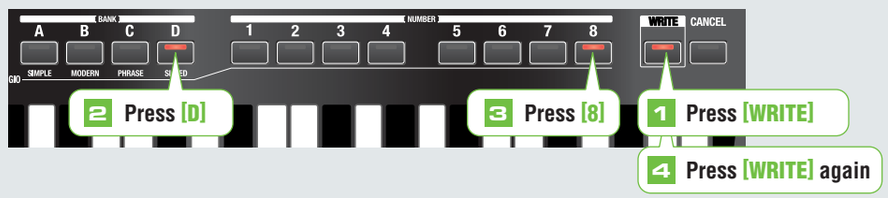
Moving right along, let's set the portamento control. The portamento is an effect where the transition between two consecutively played notes is smooth and gradual in pitch. This effect is unique to synthesizers, and creates an effect similar to the slide (glissando) technique used in violins.



You can control the speed of the portamento effect by pressing the NUMBER button **[1]** through **[8]**, while pressing the **[PORTAMENTO]** button down. Try various settings.

You were able to create a basic analog lead-synthesizer sound through the previous steps. If you power the unit off right now, this timbre will be lost. Since you worked hard to program this timbre, let's store it safely.

Press the **[WRITE]** button and select the location in which you want to store the timbre. Store it in the USER D-8 location by first pressing the BANK **[D]** button and then pressing the NUMBER **[8]** button. Press the **[WRITE]** button once again and ta-da!! You have stored it!

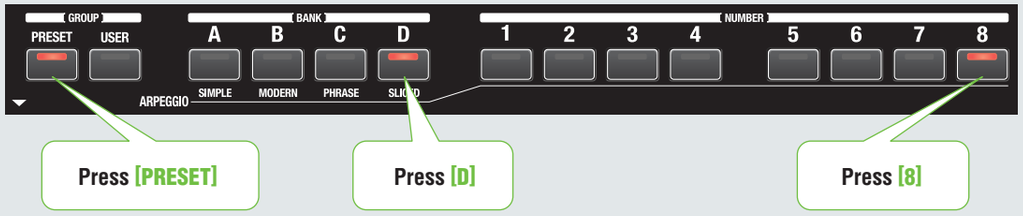


This is a sound generator capable of producing low frequencies. On analog synthesizers, it is also called LFO(*1).

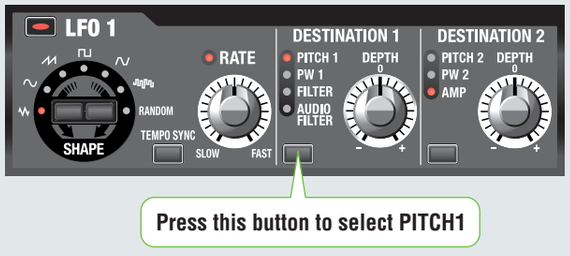
To achieve expressive, animated sounds, many musical instruments are played with cyclic vibration of sound frequency, volume, and/or timbre. LFO creates these effects for a synthesizer.

Vibration of Frequency (OSC)	→	Vibrato (voice, violin, etc.)
Vibration of Timbre/Sound	→	Wah Wah (woodwinds, etc.)
Vibration of Volume (AMP)	→	Tremolo (organ, electric piano, etc.)

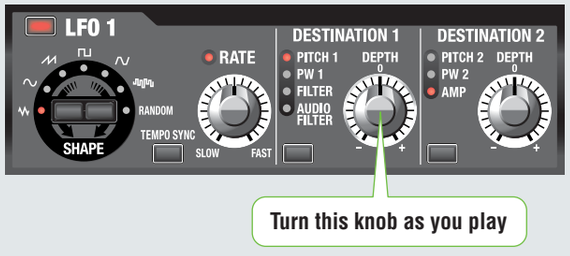
To understand the LFO effect, let's select the basic patch **[PRESET D-8]** once again.



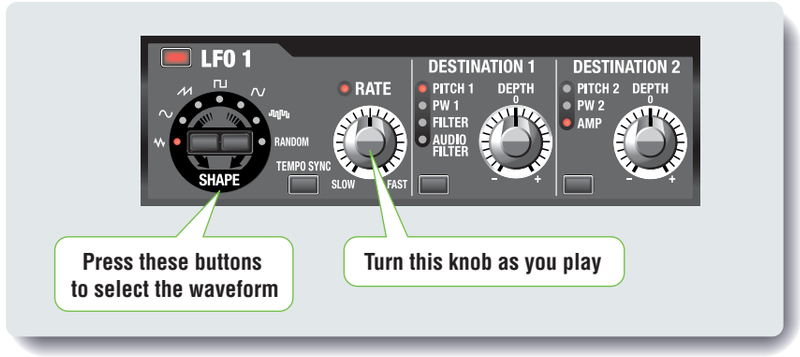
Press the **[DESTINATION1]** button and select the target for the LFO to process. Try the vibrato effect here by selecting PITCH1.



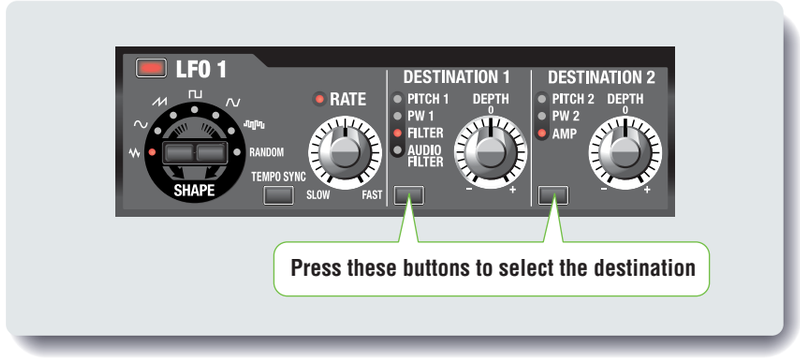
Turn the **[DEPTH]** knob gradually while playing. As you turn the knob all the way from left to right, the vibrato becomes deeper.



You can switch the vibrato waveform by pressing the **[SHAPE]** button. Additionally, turning the **[RATE]** knob will change the speed of vibrato. Try out various settings for vibrato with different waveforms and speeds. For example, the human voice or a violin would typically have a vibrato rate of 2 to 7 cycles per second.



Press the **[DESTINATION]** button and select AMP for tremolo, or FILTER for growl effects.



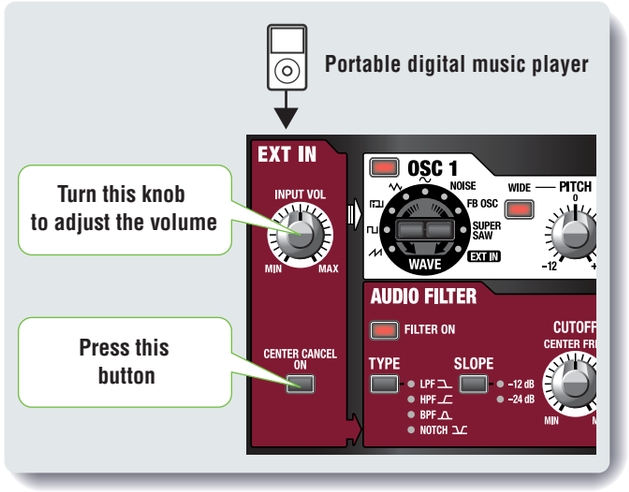
PCM Synthesizer

On the other end, with high-capacity wave memory, are synthesizers that authentically reproduce acoustic instruments. These sample-playback synthesizers are useful for a wide range of genres — from rock, pop, R&B, jazz, classical, and any other style that requires accurate recreations of realistic instruments and sounds.

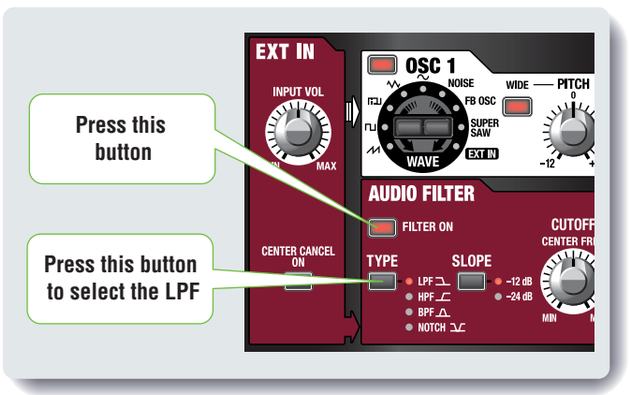
(*1) Low Frequency Oscillator

The newest feature of the SH-201 is the EXT IN(*1), which is a major evolution from prior analog synthesizers. When devices such as portable digital music players are connected to the SH-201, various effects can be added to the music being played.

Set the portable digital music player to Play mode. Turn the **[INPUT VOL]** knob to adjust the volume level. You can delete centrally panned sounds, such as vocal or bass, by pressing the **[CENTER CANCEL]** button.

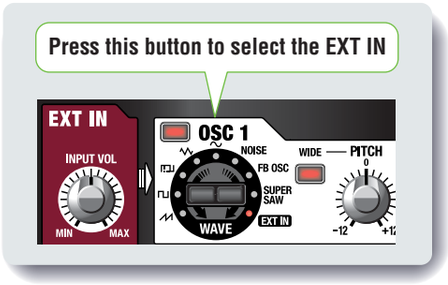


Next, press the **[FILTER ON]** button. Press the **[TYPE]** button, and select LPF(*1). The LPF filters out the user-defined range of high frequencies that pass through. This has no effect on the low frequencies.

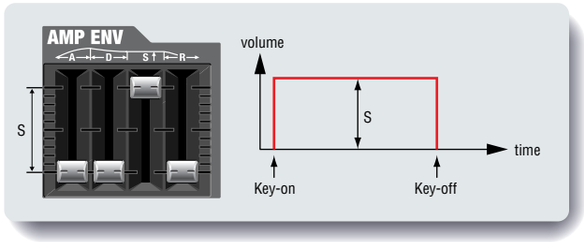


Turn the **[CUTOFF]** and **[RESONANCE]** knobs gradually left or right, and hear how the sound changes. Afterward, turn the **[CUTOFF]** knob all the way left to (MIN). The sound now will be inaudible, as most of the frequency range is blocked.

To make the portable digital music player will sound only when the keyboard is played, press the **[WAVE]** button on the OSC1 (oscillator 1) and select the waveform to EXT IN.



To cause silence when your hand is released from the keyboard, lower the **[R]** slider of the AMP ENV all the way down.



Experiment with the **[TYPE]**, **[CUTOFF]**, and **[RESONANCE]** controls as you play the keyboard. Just as the sawtooth and square waves were processed with effects, your portable digital music player's music is processed with effects now.

It doesn't really matter which keys you play, the portable digital music player's music will play in the original pitch unchanged. If you press too many keys simultaneously, however, it may cause the sound to distort, so select the **[SOLO]** button and play monophonically (a single note at a time).

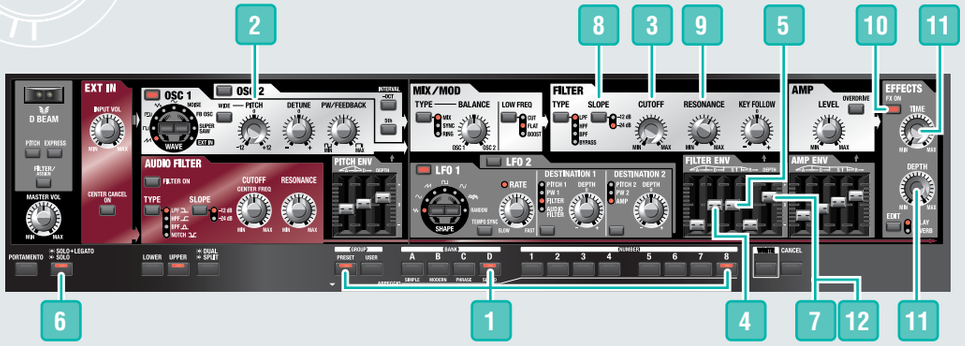
Next, let's create sounds and experience them!

How you use the EXT IN

How you use the EXT IN is completely up to you! You can play the keyboard along with the rhythm of the music, or play fast riffs on the keyboard to achieve the effect of the high-speed camera shots. Experiment and explore the many effects and usages!

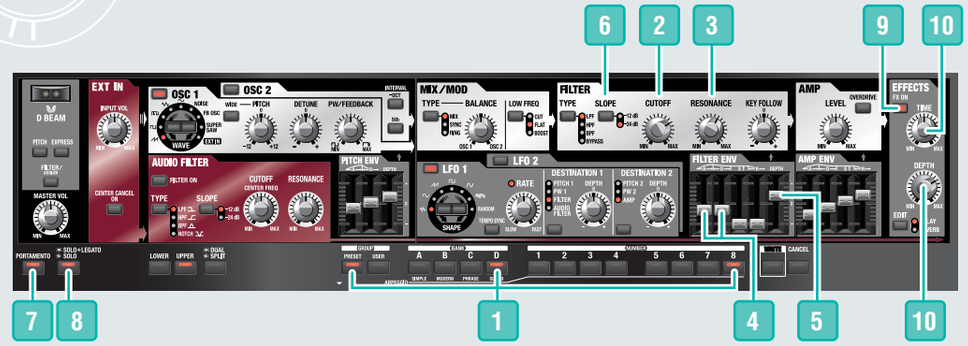
(*1) External In (*2) Low Pass Filter

1 Synth-Programming Examples
Synth Bass



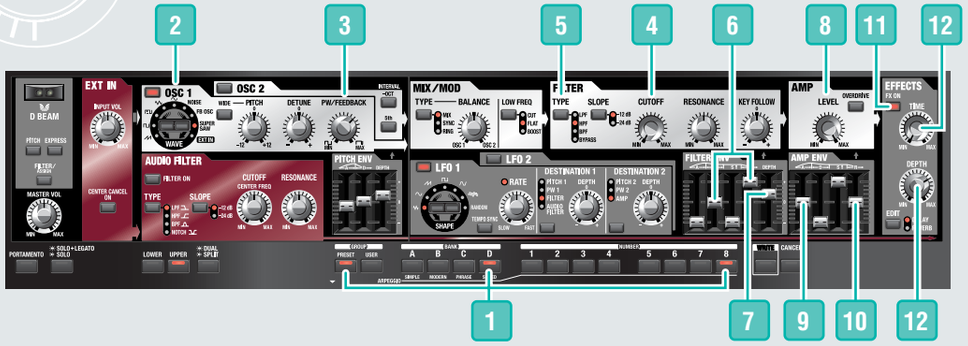
1. Choose **“PRESET D-8”**. The sawtooth wave is selected.
2. Since bass involves low frequencies, turn the **[PITCH]** knob on the OSC section all the way to left, and set to (-12). Now the sound is lowered by 1 octave.
3. Turn the **[CUTOFF]** knob on the FILTER section all the way left and set to (MIN). The sound becomes inaudible.
4. Let’s create the initial attack of the sound. Raise the **[D]** slider of the FILTER ENV a little.
5. Let’s determine the timbre of the sustained note. Raise the **[S]** slider of the FILTER ENV a little.
6. In order to achieve the effect of sliding over the frets while holding the string down (glissando), press the **[SOLO]** button.
7. Slightly raise the **[DEPTH]** slider of the FILTER ENV to determine the overall timbre. The attack is weakened, and sound will be darkened.
8. Press the **[SLOPE]** button and select -24dB. The core of the sound is retained, yet it sounds a little darker now.
9. Turn the **[RESONANCE]** knob and add a little bite to the sound as you like.
10. Press the **[FX ON]** button.
11. Turn the **[TIME]** knob in the EFFECTS section all the way left to (MIN). Turn the **[DEPTH]** knob and fatten the bass timbre.
12. Lastly, fine adjust the **[DEPTH]** slider of the FILTER ENV to determine the overall sound.

2 Synth-Programming Examples
Synth Lead



1. Choose **“PRESET D-8”**. The sawtooth wave is selected.
2. Turn the **[CUTOFF]** knob in the FILTER section to the “two o’clock” position.
3. Turn the **[RESONANCE]** knob in the FILTER section to the “one o’clock” position.
4. Let’s create the initial portion of the sound. Raise the **[A]** and **[D]** sliders of the FILTER ENV a little.
5. Determine the overall timbre by raising the **[DEPTH]** slider of the FILTER ENV.
6. Press the **[SLOPE]** button in the FILTER section and select -24dB. The sound gains more bite by doing so.
7. Press the **[PORTAMENTO]** button.
8. To further enhance the lead synth sound, press the **[SOLO]** button. Now it plays monophonic (a single note at a time). Also when you hold a key while pressing another key, the two notes will transition smoothly.
9. Press the **[FX ON]** button.
10. Position the **[TIME]** knob at “twelve o’clock”. Turn the **[DEPTH]** knob and add some echo effect to the lead sound (delay).

3 Synth-Programming Examples
Synth Pad



1 Choose **“PRESET D-8”**. The sawtooth wave is selected.

2 Press the **[WAVE]** button of the OSC1 section and select the SUPER SAW.

3 Turn the **[PW/FEEDBACK]** knob of the OSC1 section to the “one o’clock” position.

4 Turn the **[CUTOFF]** knob in the FILTER section all the way left to (MIN). The sound becomes inaudible.

5 Press the **[TYPE]** button in the FILTER section and select HPF. The sound is audible once again.

6 Let’s determine the overall timbre. Raise the **[D]** slider of the FILTER ENV mid-way up and raise the **[R]** slider all the way up.

7 Raise the **[DEPTH]** slider of the FILTER ENV gradually to determine the overall timbre.

8 Turn the **[LEVEL]** knob of AMP section all the way right to (MAX).

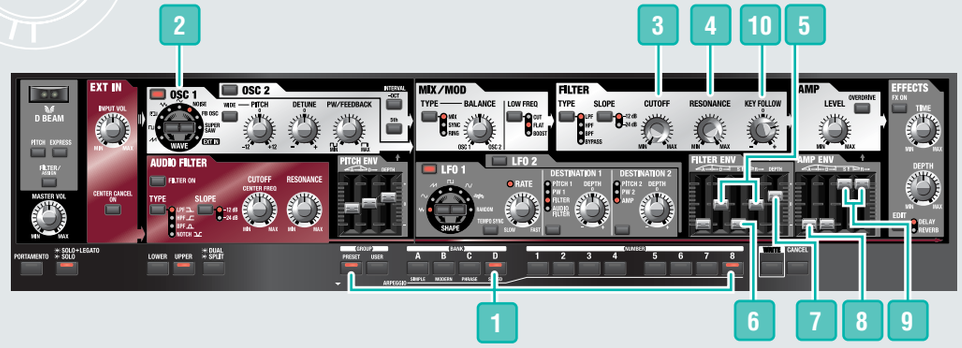
9 Raise the **[A]** slider of AMP ENV mid-way up. The initial attack of the sound becomes slower.

10 Raise the **[R]** slider of the AMP ENV mid-way up. The sound will not die off after you release your fingers from the keyboard now.

11 Press the **[FX ON]** button.

12 Turn the **[TIME]** knob in the EFFECTS section all the way left to (MIN). Turn the **[DEPTH]** knob to enhance the resonance.

4 Synth-Programming Examples
Sound Effects



Let’s create a sound effect like a synth drum. This sound is created from deliberately generated sound from the filter.

* Sudden loud sound may occur. In order NOT to damage your hearing or speakers, turn the knob slowly.

1 Choose **“PRESET D-8”**. The sawtooth wave is selected.

2 Press the **[WAVE]** button in the OSC1 section and select NOISE.

3 Turn the **[CUTOFF]** knob in the FILTER section all the way left to (MIN). The sound becomes inaudible.

4 Turn the **[RESONANCE]** knob in the FILTER section all the way right to (MAX).

5 Raise the **[D]** and **[R]** sliders of the FILTER ENV mid-way up.

6 Lower the **[S]** slider of the FILTER ENV all the way down.

7 Raise the **[DEPTH]** slider of the FILTER ENV gradually upward.

8 Lower the **[A]** slider of the AMP ENV all the way down.

9 Raise the **[S]** and **[R]** sliders of the AMP ENV all the way up.

10 As you turn the **[KEY FOLLOW]** knob rightward a little, you can change sound’s brightness with your key location.

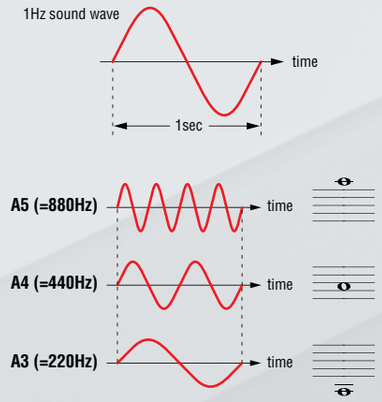
The Three Elements of Sound

Sounds are waves that vibrate through the air. These waves eventually reach our ears, and we would recognize them as sounds. The shape of the wave determines its sound.

In concept, sounds are composed of three elements: pitch, volume, and brightness.

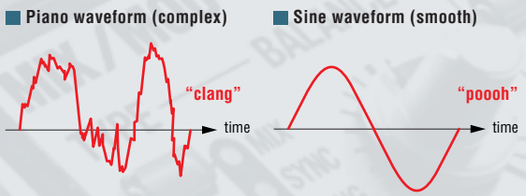
Pitch

The pitch of sound is determined by the speed of the wave cycles. A wave that vibrates 1 cycle per second is called 1 Hz (hertz). As the frequencies become higher, Hz becomes higher in numbers. Lower the number in hertz, and frequencies will become lower as well. For example, when A4 (center A) equals 440.0 Hz, an octave higher pitch would generate twice the amount of frequency at 880.0 Hz (A5). An octave lower pitch would produce half the frequency at 220.0 Hz (A3).



Brightness

The brightness of a sound is determined by the shape of its waveform. By comparing the piano and the square wave side by side, you can see the difference in complexity. In this example, the complexity of the waveform results in a brighter sound.

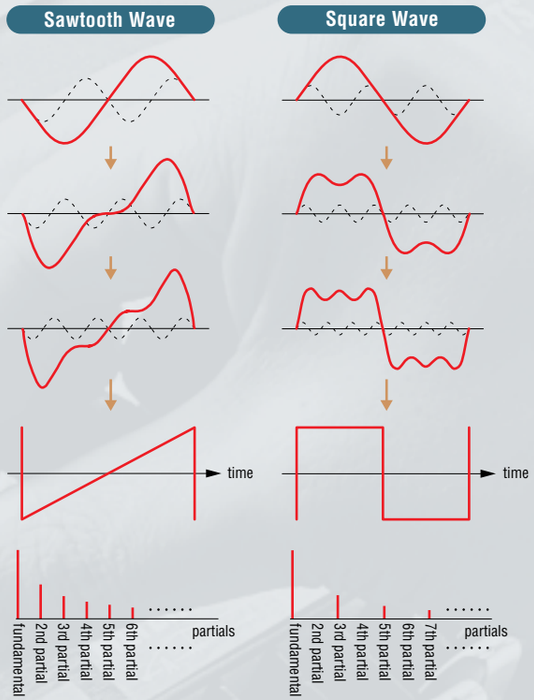


Volume

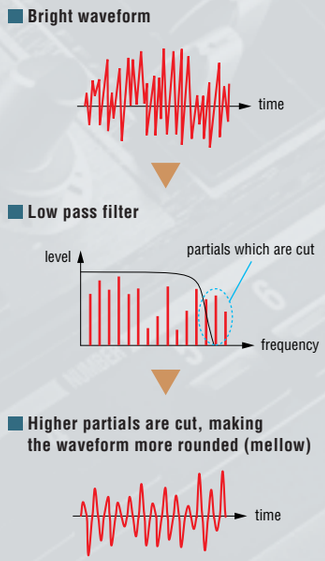
The volume of the sound is determined by the size or the width of the waves. As the waves become wider (vertically on the graph), the louder the volume becomes. As the width narrows, the volume becomes softer.

Harmonics

We've just talked about the brightness of sounds, and how they are determined by the shape of their waveforms. But how are these waveforms constructed? It is commonly known that waveforms are composed of a combination of sine waves. Let's take the sawtooth or the square wave for example; they are comprised of a sound basis and additional sine waves that are the integer multiples as in two times or three times the frequency (called harmonics, or overtones). There are two kinds of harmonics. One has the frequencies of integer multiples in two times or three times; the other has other frequencies that are non-integer multiples. By combining these harmonics, various sounds can be created.



Brighter sounds include many high frequency harmonics; darker (rounder) include more of the low frequency harmonics. There is a technique called subtractive synthesis method in which harmonic elements are cut to change the brightness (waveform) of the sound. It is a popular method for creating composite waveforms. The SH-201 has waveforms with built-in harmonics. These waveforms with harmonics components are rejected through the filter to change the brightness of the sound.



One look at the panel is all it takes to inspire your creativity. That's the SH-201.

It's been 26 years since my first encounter with a synthesizer, and that memorable first synthesizer was the "Roland SH-2". At that time, it was not unusual for synthesizers to carry a price tag of several thousand dollars or more. It was truly a dream instrument out of reach for middle-class citizens.

During that time, the synthesizer to break the affordable thousand dollar barrier was Roland's original SH series, which became a global success. The synthesizer's fundamental signal flow of VCO→VCF→VCA was easily mastered through the SH-2's user-friendly panel layout. The result was a fun and easy-to-operate machine where sound creation was thoroughly delightful.

Also, analog synthesizers back then had many unstable elements, such as poor pitch and tuning calibration. However the SH-2 was very consistent and outstanding in that area among the others. Best of all, the "Sound" itself is magnificent and there are still many musicians who use them today.

Looking back at that time, most people thought of the synthesizer as a tool to replicate real-life sound.

In contrast, listing to the latest music trend, numerous sound/music producers have created sounds that only synthesizers can produce, and listeners are demanding these sounds as well.

Most of the PCM synthesizers have set their goal on the pursuit of reality or replication. I am glad to see that this particular synthesizer, the SH-201, is built upon the ultimate pursuit of the "synthesized sound" itself. One look at the panel is all it takes to inspire your creativity. That's SH-201.

The eight oscillator waveforms are carefully selected and distinctively different from the PCM in the way they possess the ultimate analog-modeling qualities. The smooth-yet-aggressive contour of the filters is the result of Roland's quarter of a century experience and technological innovation.

Of course, it's quite obvious to see that many creative modulation-based effects can be achieved through the LFO, the synthesizer's backbone function.

As for the controls, rotary knobs are used for controlling filters, pitches, and rates, and the vertical faders are used to control the time-variable parameters such as the envelope generator for easy visual setting. It's design with sound creation as the top priority is simply superb.

Today, evolution in the electronic-music industry has placed the synthesizers with large memory capacity in the mainstream. It is also a fact that most keyboardists rely on enormous sound libraries and preset sounds.

That is where the SH-201 comes in, as it allows you to easily create "sounds from scratch" with its simple analog controls, the way synthesizers were designed to do in the first place.

The SH-201 is truly a 21st century masterpiece, with its lightweight body and incredible cost performance. I hope you take your time and thoroughly enjoy this incredible instrument!


Photo by Isao Nishimoto

Profile

Hisashi Saito

He has been active in various Techno/Club units within Japan and overseas since the 1980's. His involvement includes development support for numerous musical instrument manufacturers, appearances in various events and seminars, along with writing columns and reviews for various music magazines.
He is an active member of the Japan Synthesizer Programmers Association (JSPA), an organization supporting and educating the synthesizer enthusiasts of tomorrow through various activities promoting the overall electronic music.

SH-201
SYNTHESIZER

Creating Sounds with Fun and Ease

Synthesizer 101: Learning the SH-201

Roland®
WE DESIGN THE FUTURE

Visit us online at www.Roland.com

Printed in Japan. May 2006 RAM-4077 B-4 P-S